The ♂ is distinguished (from the ♂ of *R. auratus*) by the head being shorter, the *eyes* evidently more *prominent,* the *rostrum* distinctly *longer* and *thinner,* the antennæ inserted nearer the middle of the rostrum, and the thorax shorter and having a minute rudimental spine on both sides. The scutellum in both sexes is distinctly smaller, and has the margin less elevated.

The ♀ has the *rostrum* distinctly *longer* and *thinner* (than the ♀ of *R. auratus*), the thorax shorter and more rounded at the sides, the *eyes* more *prominent,* and the sculpture in both sexes is deeper and coarser.

♂ ♀ in the cabinet of the British Museum and in that of Mr. Stephens and Mr. Curtis: ♀ in my own collection.

In the Linnæan cabinet there is one example only of this species, pinned through the name, and which is undoubtedly the true *Curc. Bacchus* of Linnæus. The ♂ ♀ in the cabinet of Mr. Stephens he obtained with many others in the Marshamian collection.

Mr. Curtis had his (♂ ♀) from the British cabinet of the late Mr. Francillon.

The ♀ in my own possession was taken by Mr. Benjamin Standish near Cracking Hill, Birch Wood, on the 24th of September 1843, off the oak underwood. Mr. Douglas, who was there on the same day, saw the insect alive.

At the first glance this species has certainly a great resemblance to No. 16, *R. auratus,* but the specific characters which separate the two are distinct and unequivocal: the blending of these two species in our cabinets must be attributable to the want of a proper examination.

XI.—*An account of some Seeds buried in a Sand-pit which germinated.* By Mr. William Kemp of Galashiels, in a Letter to Charles Darwin, Esq.

Having received early last spring some seeds, which were found at the bottom of a sand-pit upwards of twenty-five feet in depth, I most carefully examined into all the circumstances of their discovery. They were first seen by a respectable workman of the name of Thomas Welsh, who was excavating the finer sand at the bottom of the pit, in a part which was rather undermined; and fortunately Mr. John Bell of Melrose, the proprietor of the place, was looking on at the instant that they were disinterred. He kindly sent by Welsh some of the seeds to me, and I immediately returned with him, and in company with Mr. Bell carefully examined the layer in which they had been imbedded. The seeds were apparently of only two kinds; I sent specimens of them (through

Mr. Darwin) to Professor Lindley, and sowed the others myself. The plants reared by myself were sent to Professor Henslow, who states that they consist of *Polygonum convolvulus* and a variety of *Atriplex patula*; the seeds planted at the Horticultural Society by the kindness of Professor Lindley produced *Rumex acetosella* and an *Atriplex*, which was not at first recognised, but which Mr. Babington states is exactly like a variety of *A. angustifolia* which he has seen growing on mud in salt-marshes and on manure-heaps.

The sand-quarry is situated about a quarter of a mile west of Melrose, and at the height of between fifty and sixty feet above the nearest part of the Tweed. The seeds were *mingled with some decayed vegetable fibres*, and formed a layer resting upon another layer, eight inches in thickness, of fine sandy clay. This latter lay over a mass of gravel, which again rested on a great mound belonging to the boulder formation. This mound, which extends about a mile along the middle of the valley, is about ninety feet in thickness, and I believe was formed by the action of glaciers. It contains enormous *angular* blocks of rock, and others smoothed and distinctly scored in lines parallel to their longer axes. The layer of sandy clay, on which the seeds rested, was capped by upwards of twenty-five feet in thickness of distinctly stratified sand, which has been largely quarried. The beds of sand vary in thickness and in fineness; sometimes they alternate with thin seams of impalpable clay, and sometimes they contain minute pebbles and fragments of carbonaceous, decayed wood. The layers slope at an angle of fifteen degrees towards the valley, and in this direction they thin out; the upper layers extend further into the valley than the lower ones; the entire mass has a level top, and is capped by some thin beds of fine gravel. From these several facts (as every geologist will admit), and from the general aspect of the layers of sand, it is scarcely possible to doubt that they were deposited by a river or torrent, at the point where it entered a sheet of water. I had long been of opinion that the valley of the Tweed in this part must formerly have been occupied by a lake, at a period when a great trap dyke, 100 yards wide, which crosses the valley four miles lower down at Old Melrose, had not been worn through. By an accurate levelling I have ascertained, that the layers of sand lie just beneath that level which a lake would hold, if the barrier at Old Melrose were reclosed. A depression on the surface of the land can, also, be distinctly followed from the spot where the sand-quarry is situated, up the valley, to where it joins the bed of the existing river; I cannot doubt that the Tweed anciently flowed in this depression, and deposited on the borders of the lake, the layers of sand where we now find them. It is certain that in the time of the Romans, about 2000 years

since, no lake existed here; and when we reflect on the time necessary to have worn down the barrier of trap-rock and to have drained so large a lake, which must have stood at its highest level whilst the thin layers of sand were deposited over the bed with the vegetable remains, the antiquity of these seeds is truly astonishing; and it is most wonderful that they should have retained their power of germination.

As the plants raised are common British weeds, it is indispensable that I should detail the precautions which I took, to ascertain that they did not come from other seeds, existing in the soil in which they were planted. I first put all the seeds into a tumbler of water, and about one-fourth sunk to the bottom; of these I planted about three dozen, in parallel rows in flower-pots in my house and some others in the garden; and I carefully marked each row. Rather more than one dozen of these seeds germinated, so that of the seeds found only about one-tenth part produced plants. I watched from day to day their germination, and saw each little plant bring to the surface the husk of its seed; and these husks I compared under a microscope with other seeds which I had not planted. None of my plants at first grew vigorously. Five or six weeds appeared out of the rows, and these I picked up as they appeared and threw away. Of the two kinds of seeds sent to Professor Lindley, one was pronounced by him to be a *Polygonum*, and the other probably a *Chenopodium*; this latter genus belongs to the same natural family with *Atriplex*, and the seeds resemble each other. It is therefore certain that I planted seeds resembling those of *Polygonum* and *Atriplex*: now will any one believe, that, in the soil in the garden and likewise in the flower-pot (which in the latter produced only five or six weeds), there were accidentally lying, in exactly the *same parallel rows* in which I planted my seeds, above a dozen other seeds of these two genera? I think no one will imagine that this was the case. Moreover, the few seeds planted at the Horticultural Society produced an *Atriplex* and a *Rumex*: whether this latter plant was really produced from my seeds I do not know; but as its triangular seeds resemble those of *Polygonum*, I may have overlooked their difference, and have obtained these two kinds, besides the *Atriplex*, from the sand quarry.

I hope that this account, besides establishing the fact that seeds may retain, when *naturally* preserved, their vitality for enormous periods of time,—from an epoch when the external features of the country were widely different,—will stimulate naturalists to search for seeds in the ancient alluvial deposits of other districts.